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THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

of the

VILLAGE OF RODNEY

COUNTY OF ELGIN

1966

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Report on a water pollution survey of the village of Rodney, county of Elgin.

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REPORT

ON A

WATER POLLUTION SURVEY

OF THE

VILLAGE OF RODNEY

COUNTY OF ELGIN

SEPTEMBER, 1966.

DIVISION OF SANITARY ENGINEERING

REPORT

ONTARIO WATER RESOURCES COMMISSION

INTRODUCTION

A water pollution survey was conducted in the Village of Rodney on June 15 and September 8, 1966. The purpose of the survey was to locate and record all significant sources of water pollution within the village.

The Ontario Water Resources Commission conducts such surveys, routinely and upon request throughout the province, as part of its objective to eliminate existing and potential sources of pollution.

The procedure followed is to sample all known or suspected sources of pollution. When adverse conditions are found to exist, recommendations are made to assist the municipality in the initiation and development of a pollution abatement programme.

PREVIOUS SURVEYS BY OWRC STAFF

A sanitary survey of surface water drains in the Village of Rodney was conducted in June of 1961. The results of samples collected during the survey indicated that untreated sanitary sewage was being discharged to the Wismer and Milton drains. A recommendation was made to the municipality at that time to give consideration to the planning of a sewerage works programme.

INTERVIEW WITH OFFICIAL

An interview was held with Mr. R.F. Coles, Clerk-Treasurer of the municipality. It was indicated that no serious consideration was being given to the implementing of a sewage works programme.

VILLAGE OF RODNEY

The Village of Rodney, with a population of 1,099 and a taxable assessment of $1,211,000 (1966 Municipal Directory), is located in the Township of Aldborough, the most westerly township in the County of Elgin.

DRAINAGE

The village is situated in the Sixteen-Mile Creek Watershed. Surface water drainage for the village is provided by the Wismer and Milton drains. The Milton drain services the eastern section of the municipality and discharges to Sixteen-Mile Creek just south of the Michigan Central Railway and east of Furnival Road. The Wismer drain services the western section of the municipality including the business section on both sides of Furnival Road. The drain discharges to the creek south-west of the village. Both of these drains are natural watercourse which are tributaries of Sixteen-Mile Creek.

Sixteen-Mile Creek empties into Lake Erie near the Hamlet of Port Glasgow.

STORM SEWERS

Storm sewers, which discharge to the two drains, have been installed over the years as required. Unfortunately, no plan of these installations exists, with the result that detailed information regarding the overall surface drainage system is not available.

TOPOGRAPHY

The overburden consists of an almost level sand plain which tilts slightly toward Lake Erie in a southerly direction. There is a slight ridge running from the north-west to the south-east on the easterly side of Furnival Road, which accounts for the drainage pattern discussed above.

The layer of sand ranges from 10-20 feet above a blue clay layer, with the watertable ranging from 4-15 feet from the ground surface.

WATER USES

Sixteen-Mile Creek is not significantly used for purposes other than receiving surface run-off.

WATER SUPPLY

The village purchases water from the West Lorne Water System for distribution to the residents of the municipality. It was reported that the council was considering developing its own water system.

SEWAGE DISPOSAL FACILITIES

The village does not have sanitary sewers or sewage treatment works. Individual sewage treatment systems are used, with septic tank and tile bed systems being the most common. These installations require the approval of the Elgin-St. Thomas Health Unit.

The results of the samples collected during the survey indicated that partially treated or raw sewage was being discharged to the storm sewers. Information obtained at the time of the survey indicated that the business section of the village, due to the lack of space for adequate tile beds was the main offender.

Where space is available, the ground conditions are generally suited to sub-surface disposal of sanitary sewage.

SAMPLING PROCEDURE

Samples were collected from the Wismer and Milton drains immediately downstream from known storm sewer outlets. The location of the sampling points and the storm sewer outlets is shown of the enclosed map.

The samples were submitted to the OWRC laboratory for chemical analyses and bacteriological examination.

INTERPRETATION AND SIGNIFICANCE OF LABORATORY ANALYSES

Bacteriological Examination

The Membrane Filter technique was used to obtain a direct enumeration of coliform organisms. These organisms are normal

inhabitants of the intestines of man and other warm blooded animals. They are always present in large numbers in sanitary sewage and are generally minimal in other water pollutants.

The results of the examinations are reported as "MF Coliforms per 100 ML".

The Commission's objective for a watercourse is a coliform density of not greater than 2,400 organisms per 100 ML.

SANITARY CHEMICAL ANALYSES

Biochemical Oxygen Demand (BOD)

Biochemical Oxygen Demand is reported in parts per million (ppm) and is an indication of the amount of oxygen required for the stabilization of decomposable organic matter in the water.

The Commission's objective in a watercourse is a maximum upper limit of 4 ppm.

SOLIDS

The value for total solids, expressed in parts per million (ppm), is the sum of the values for the suspended and dissolved matter in the water. The concentration of suspended solids is generally the most significant of the solids analyses in regard to the sanitary quality of water.

The effects of suspended solids in water are reflected in difficulties associated with water purification, deposition in streams and injuries to the habitant of fish.

The Commission's objective for a watercourse is an upper limit of 15 ppm suspended solids.

SAMPLE RESULTS

The results of the samples collected all exhibit a degree of pollution in the two drains. The two samples with a BOD of less than 4 ppm were collected from the drains on the upstream part of the village. The remaining samples with a BOD of more than 4 ppm indicate that inadequately treated sewage was being discharged to the drains within the municipality.

The extremely high coliform counts in the samples also suggest the presence of inadequately treated sewage. As coliform organisms are normal inhabitants of the intestines of man, it is possible for water-borne disease organisms to be present, thus creating a health hazard.

SUMMARY

A water pollution survey of the Village of Rodney was conducted on June 15 and September 8, 1966.

Samples were collected for chemical analyses and bacteriological examination from the Wismer and Milton drains.

The results of the samples indicate that inadequately treated sewage was being discharged to the watercourse within the municipality.

CONCLUSION

The Commission is concerned with all sources of pollution which may gain access to any watercourse in the Province of Ontario. Domestic sewage should receive adequate treatment before being discharged to a watercourse.

Correction of the adverse conditions found during the survey may be accomplished by the severence of all private sewage connections to the storm sewers or the installation of sanitary collector sewers and a sewage treatment plant. In a great number of cases, the latter procedure is the more desirable.

RECOMMENDATIONS

In order to control local sanitation, and as a measure in pollution abatement and control, the following recommendations are presented.

1. A pollution abatement programme should be instituted for the Village of Rodney. Such a programme should include the installation of a system of sanitary waste collection sewers and an adequate method of waste treatment.

2. In the event that the institution of sewerage works is not feasible, it will then be required that the municipality take immediate measures to ensure that all private drains which discharge inadequately treated wastes to any surface-water drain, or watercourse, are located and severed. This action will then require each property owner to provide an approved system for the adequate treatment of his own wastes.

Prepared by: J. A. Moore for
R.G. Quance, Technician,
Division of Sanitary Engineering.

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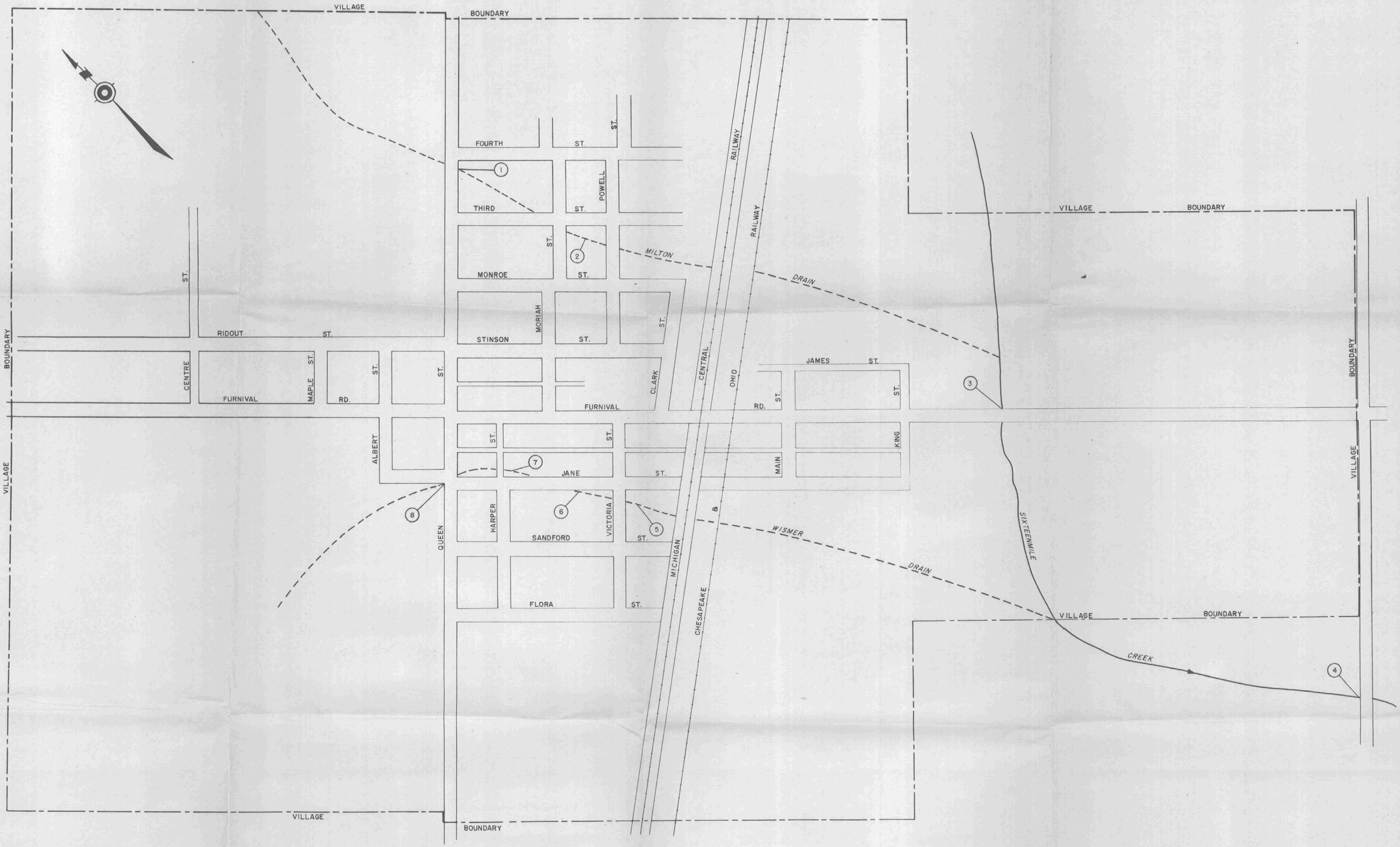
TABLE I

VILLAGE OF RODNEY - WATER POLLUTION SURVEY

SAMPLE ANALYSES RESULTS

Sample No.	Description of Sampling Points	5-Day BOD (ppm)	SOLIDS Total (ppm)	SOLIDS Susp. (ppm)	SOLIDS Diss. (ppm)	Coliforms per 100 ml Membrane Filter
(1)	Milton Drain at Queen Street.	2.8	426	12	414	410,000
(2)	Milton Drain at Moriah Street.	4.2	426	4	422	1,800,000
(3)	Sixteen-Mile Creek at Furnival Road.	6.0	554	108	446	690,000
(4)	Sixteen-Mile Creek at 1st Conc. Road downstream from Rodney.	5.0	416	176	240	56,000
(5)	Wismer Drain at Victoria Street.	21.	426	38	388	1,530,000
(6)	Wismer Drain 200 feet North of Victoria Street.	22.	412	36	376	12,000,000
(7)	Wismer Drain at Harper Street.	4.8	486	11	475	1,900,000
(8)	Wismer Drain at Queen Street.	3.8	516	76	440	98,000



LEGEND

(7) – SAMPLING POINT

ONTARIO WATER RESOURCES COMMISSION	
VILLAGE OF RODNEY WATER POLLUTION SURVEY 1966	
SCALE : 300 150 0 300 FEET	
DRAWN BY : L.L. BROOME	DATE : DECEMBER, 1966
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